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REQ FOR RECONS  
11-5-03

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE THE APPLICATION OF

Nidham Ben Rached et al.

SERIAL NO.: 09/402,955

FILED: February 14, 2000

FOR: Space-Weighted Communication Path  
Estimation

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)  
) Examiner: Curtis Odom

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) Group Art Unit: 2634

)  
) Customer Number: 23644

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**RESPONSE TO OFFICE ACTION OF July 11, 2003**

Honorable Director of Patents and Trademarks  
P.O. Box 1450  
Alexandria, VA 22313-1450

Dear Sir:

The following comments are provided in response to the examiner's office action of July 11, 2003. No amendments are being made since none are believed to be appropriate, as will be seen from the comments below.

Turning first to the examiner's claim objection, reconsideration is requested. There are two proper plurals for the word "antennae", and in *Webster's New World Dictionary*, the plural, as used in the present application, is actually the first preferred form. It is therefore submitted that the spelling is correct, and no change is necessary.

The examiner has indicated the allowability of the subject matter of claims 3 through 14 in the office action, and that is gratefully acknowledged. However, the examiner has rejected claims 1 and 2 under 35 U.S.C. §103 as being obvious over Bahai U.S. Patent Number 6,097,770. Reconsideration is requested.

Regarding the interpretation of column 2, lines 39-44 of Bahai by the Examiner, an estimate of the impulse response of the channels (many channels), is not disclosed. Each channel impulse response estimate disclosed by Bahai, is an estimate of the impulse response of one channel and not of many channels as in the invention. The "s" at the end of channel should be deleted in the assertion of the Examiner. Indeed, the Examiner admits later that Bahai does not disclose a communication path containing a plurality of channels.

Regarding column 5, lines 9-41 and column 6, lines 65-66, no space statistic of a communication path is disclosed.

Regarding column 7, lines 19-65 and column 10, lines 19-22, Bahai et al. disclose a vector H representing the channel impulse response, a vector X representing known transmitted symbols at sample times, a vector W of independent samples of AWGN (white noise) and a vector R of received samples corresponding to X but no corrected impulse response by weighting said vector H by means of any statistic.

Even assuming that the method of Bahai et al would have disclosed a statistic and a corrected impulse response by weighting impulse response estimates by means of the statistic, and considering the asserted evidence of performing a method for a plurality of channels in the same manner that is performed from the singular channel, it is submitted that this asserted evidence would have actually led one of ordinary skill in the art at the time the invention was made to a completely different method from that of the invention.

The impulse response would effectively have been estimated and corrected for each individual channel in the plurality of channels but without correlation between the channels because as explained in page 4, lines 13 to 15 of the specification, the impulse response of each channel of the communication path was usually considered to be independent of each others. Whenever one of ordinary skill would have applied time statistic individually for each channel, the channels would have remain each separated without applying a space statistic to them as taught by the invention.

What is obvious for one of ordinary skill in the art is that a time statistic is not a functional equivalent of a space statistic, simply because space domain and time domain are

different in the technological art of telecommunications. For example, the attached article of Khalaj, et al. clearly shows that time and space are two different things. The reference discloses a method of demodulation of bits without disclosing any statistic for weighting an impulse response estimate with purpose of establishing a corrected impulse response.

Therefore, claim 1 would not have been obvious in view of Bahai.

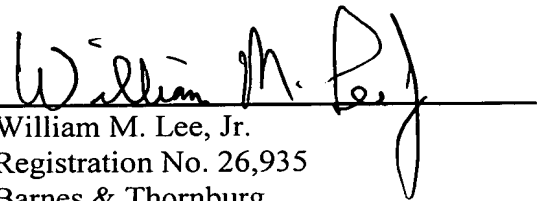
Regarding column 5, lines 29-33, a two tap estimate is generated but certainly there are no correlations of communications channels taken two by two for at least two reasons. The first reason is that only one channel is considered by Bahai. The second reason is that the two tap estimate is generated for purpose of averaging, thus losing by this fact any possibility of producing a statistic allowing correlation between estimates.

Therefore, claim 2 would also not have been obvious in view of Bahai.

Thus, while the indicated allowability of claims 3 through 14 is, again, gratefully acknowledged, it is submitted that all claims are in condition for allowance, and the examiner's further and favorable reconsideration in that regard is urged.

October 8, 2003

Respectfully submitted,

  
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